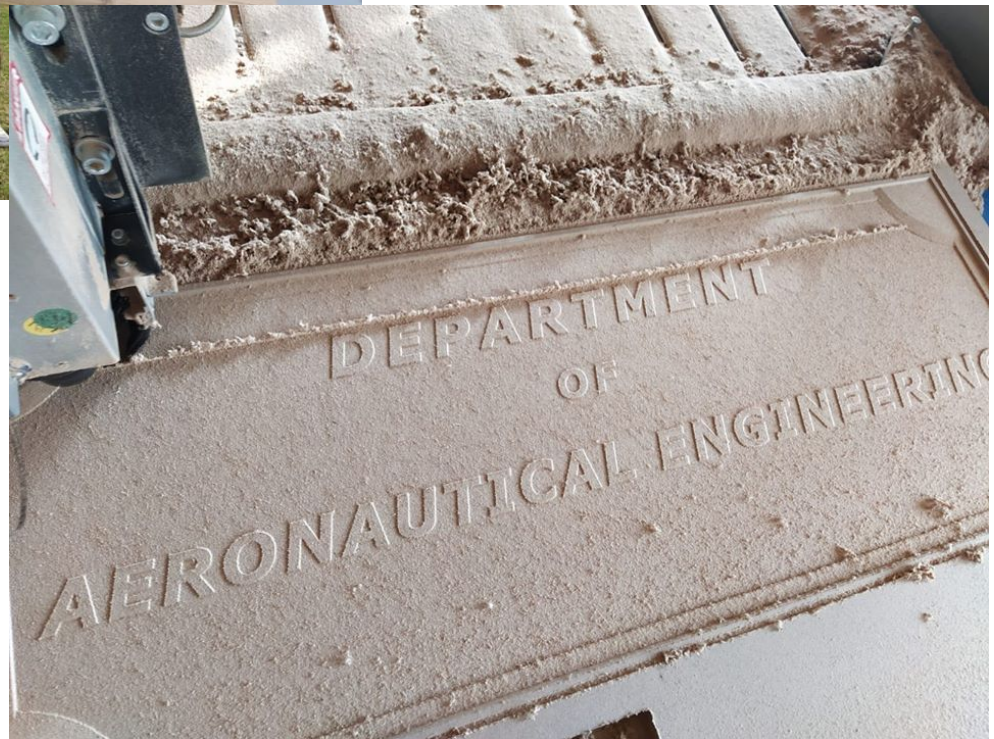




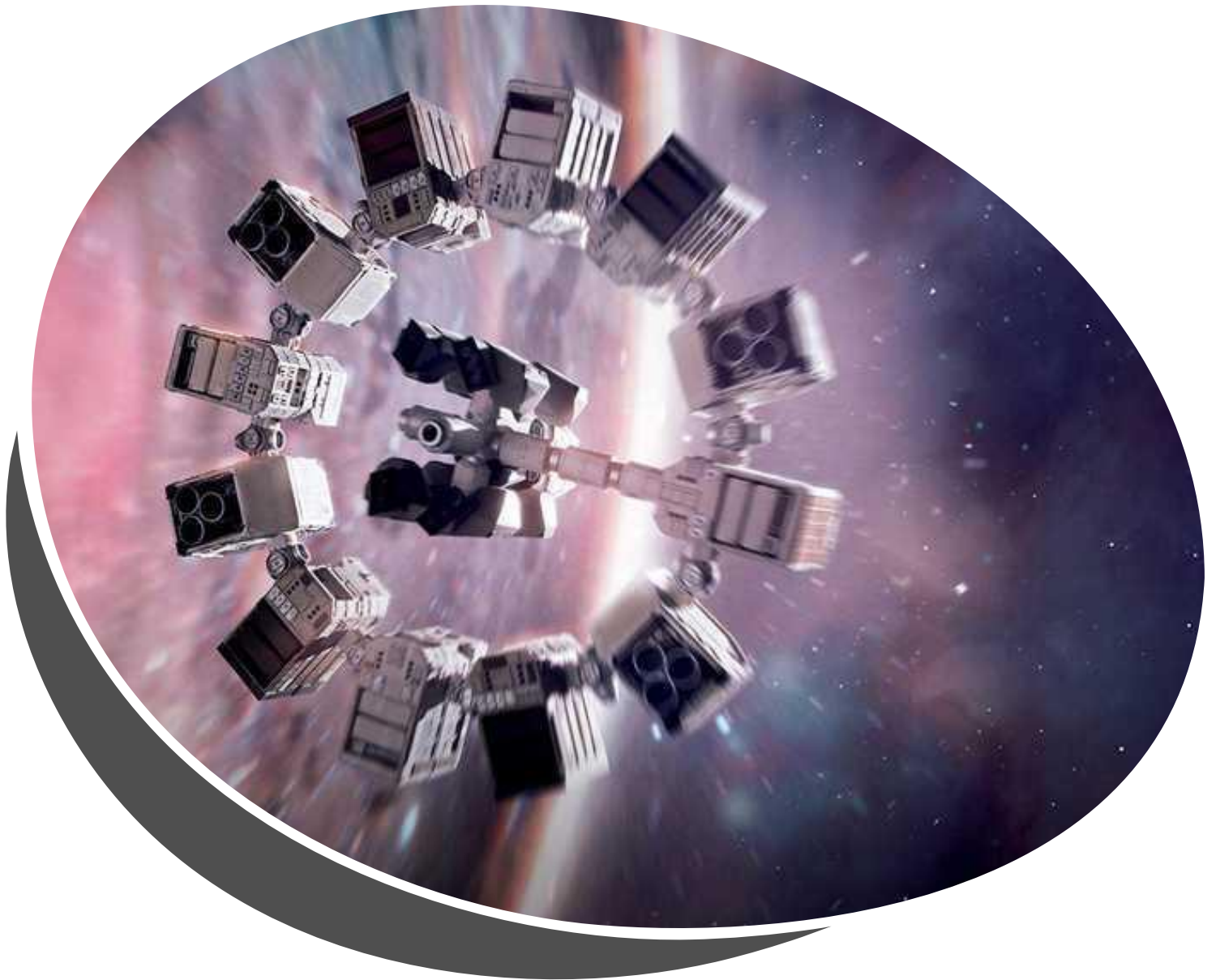
Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)

School of Mechanical & Construction Department of Aeronautical Engineering



Annual Report 2021-22

Inspiration through Innovation



Profile

Faculty

Research

Students

Iconic Events

International & Industry Relations

Infrastructure

Vision

Excellence in education and research practices of Aeronautical Engineering

Mission

- Nurture quality education ambiance to students by employing modern education pedagogies
- Provide vital state of the art research facilities to students and faculty members with opportunities to create, interpret, apply and disseminate knowledge.
- Develop linkages with the world-class research organizations and institutions for excellence in teaching and research.
- Promote Industry Institute linkages; Nurture entrepreneurship.

Profile

Undergraduate Education

Major

4 Year UG Engineering in
B. Tech. - Aeronautical Engineering

Specialization in

Computational Engineering

Autonomous Drone Technology

Honors in

Aerial Robotics



Minor*

UAV Remote Sensing & Mapping

*Minor degree offered for other degree students

Post Graduate Education

M. Tech. - Aeronautical Engineering

Unmanned Aerial vehicle

Research Studies

Ph.D. - Aeronautical Engineering



Faculty

- 190 Scopus / SCI journal publication. (40 in 2021-22)
- 5 Patents Applied
- 9 Research Scholars includes 4 full time scholars
- 100 FDP programs participation
- 1 International Conference Organized
- 12 Special Courses offered by international & Industry Experts
- 2 workshops & 5 motivational talks by industry expert



Dr. R. Jaganraj

B.E. (Aero), M.E. (Aero), Ph.D. (Aero)

DGCA Certified Commercial Drone Pilot

Associate Professor & Head

- **Published 20 + journal & 4 Patent Applications**
- **Reviewer of SCI Journals**
- **1 International Funded Project**
- **2 Consultancy Project**



Dr. B. L. Jaiswal

B.E. (Mech), M.E. (Mech), Ph.D. (Aero)

- **Professor of Emeritus**
- **Established GTRE High Speed Bearing Test Lab**
- **Expert in Mathematical Modelling and Experimental Analysis of Vibrating Structures**
- **4 Consultancy Projects**
- **1 Funded Project**

Unmanned Systems



Dr. G. Surendar
B.E. (Aero), M.Tech. (Avionics),
Ph.D (Aero - UAV)
Associate Professor
14 journals, 8 Conferences, 3 Patent
2 Funded Projects



Mr. K. Elumalai
B.E. (Aero), M.Tech (Avionics)
Avionics & Drone FCS
UAV Aerodynamics & Design



Mr. G. Gowtham
B.E. (Aero), M.Tech. (Aero).
Assistant Professor
Ongoing R&D : Parameter Identification
of Blimp Dynamics



Mr. T. Kumaran
B.E. (Aero), M.E. (Aero).
Assistant Professor
Ongoing R&D : Remote Sensing of
Cryosphere using UAV

Propulsion & Energy



Dr. Ganesan
B.E. (Mech), M.E.), Ph.D. (Aero)
Professor
Published 11 Journals



Ms. S. Nithya
B.E. (Aero), M.E. (Aero).
Assistant Professor
Published 16 journals



Mr. C. Rakeshkumar
B.E. (Aero), M.E. (Aero).
Assistant Professor
Published 4 journals & 1 Patent



Mr. B. Kirubadurai
B.E. (Aero), M.E. (Thermal).
Assistant Professor
Published 13 journal
Reviewer of Scopus Journals

Aerodynamics & CFD



Dr. R. Naren Shankar
B.E. (Aero), M.E. (Me), Ph.D (Aero)
Associate Professor
Published 7 journal, 2 Patent
Reviewer of SCI & Scopus Journals
1 Funded & 1 Consultancy Project



Mr. A. Adaikalaraj
B.E. (Aero), M.E. (Aero).
Assistant Professor
Published 2 journals



Mr. S. Suthagar
B.E. (Aero), M.E. (Aero)
Assistant Professor
Ongoing R&D : Vertical take off and
landing

Aircraft Structural Mechanics



Dr. J.V. Sai Prasanna Kumar
AMAE SI, M.Tech(Aero), PhD
Professor
Published 10 Journals & 1 Patent



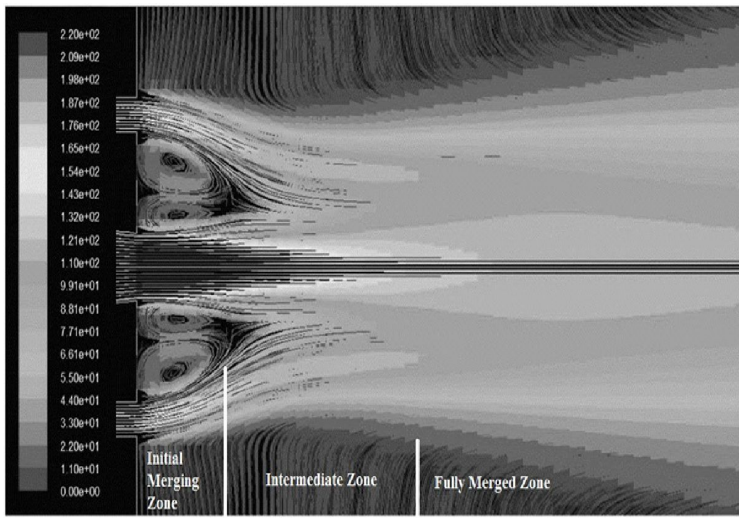
Mr. G. Boopathy
B.E. (Mech), M.E. (Aero).
Associate Professor
Published 20 journals



Mr. Kollapan
B.E. (Mech), M.E. (Design).
Assistant Professor
Published 16 Journal



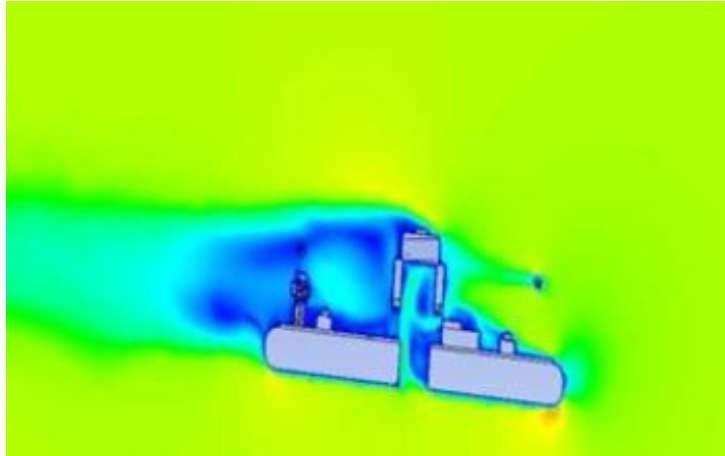
Dr. Joseph
B.E. (Mech), M.E. (Aero), PhD (Aero)
Assistant Professor
Published 20 + journals
Reviewer of SCI Journals



Research

10 R&D Projects (Rs.2.9 Cr)

Opportunity to work in live funded projects



16 Industry Projects (Rs.1.45 Cr)

Industry Consultancy Services

International Collaborative Research

South Korea, UK & Taiwan



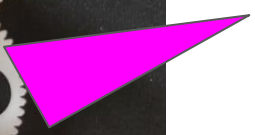
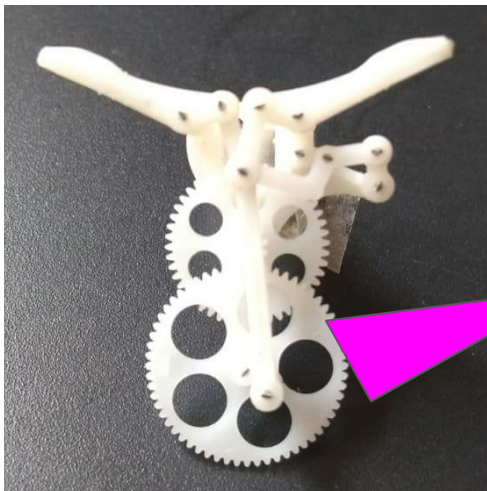
Autonomous *Drones* and its Applications

Drones are the next generation leader in transportation and exploration. Drone research group focusing on developing core technologies such as machine vision, modular design, hybrid versions and applications on remote sensing



Gas Turbines, Combustion & Energy

Vel Tech Aero established unique facility, funded by GTRE, DRDO lab. This lab caters the needs of frontier industry like GE, HAL & CVRDE. This group focuses on GT materials, combustion and energy areas

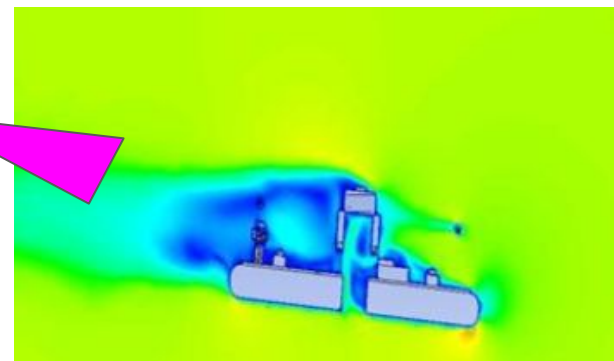


Vibrations, Light weight structures & Design

Design of lightweight structures & vibration studies are important factors in aircraft design. This group focuses on development of new generation materials, composites & dynamic studies.

Computational Engineering & Aerodynamics

Computational Engineering is an emerging area which integrates the core domain into computational models and simulations using high performance computing & Algorithms. This group focuses on solving fluid, fluid-structure & multi-physics real world problems.



High Speed Bearing Test Facility



Funded by

**Gas Turbine Research Establishment (GTRE), DRDO, Ministry of Defense,
Govt. of India**



DRDO CVRDE



- Development of Design Methodology for optimizing SFD for Aero Gas Turbine & Experiment Verification Studies
- Performance Testing and Tuning of Bearing Supports of HTFE-25 Core Engine on for Possible Axial and Radial Load Spectra
- Experimental Studies of Deep Groove Ball and Cylindrical Roller Bearings by Accelerated Load Tests
- GE Alternator Test Rig

Industry Ready Commercial Product Development

Development of amphibious UAV and water quality analysis

Funded by



Indian Implementation Agency



Indian Funding Ministry/Department



Republic of Korea Funding Ministry



Republic of Korea Implementation Agency

India-Republic of Korea Joint Applied R&D Programme

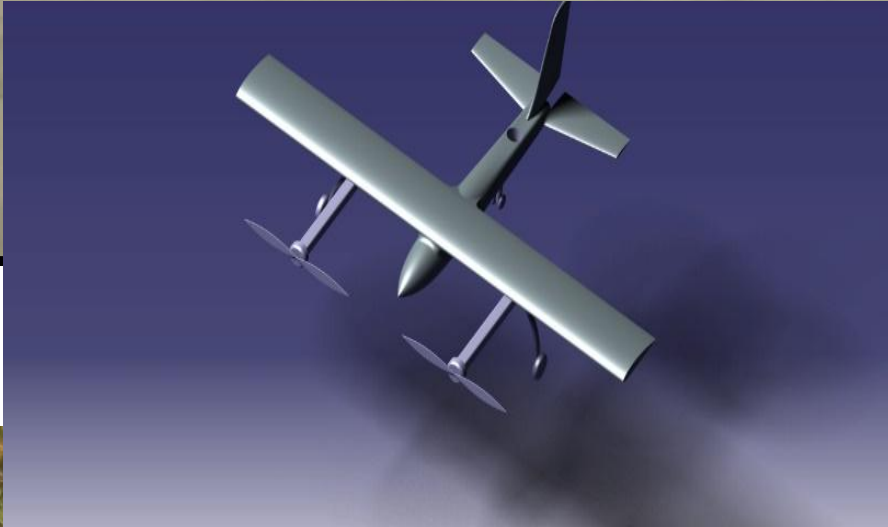
Collaborations with



A complete inhouse UAV product development in collaboration with International Partners from Korea and National Partner UCAL Fuels

Industry Consultancy on UAV Development

Design and Development of VTOL UAV



2018/01/02 09:59:39

Cruise speed 20m/s

Altitude 3000m

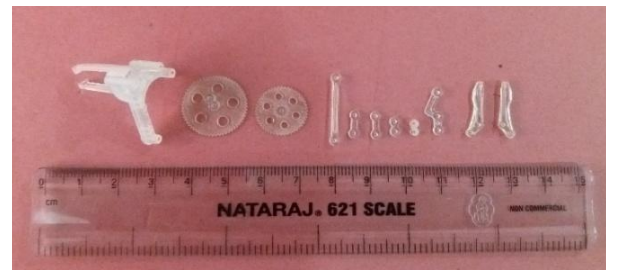
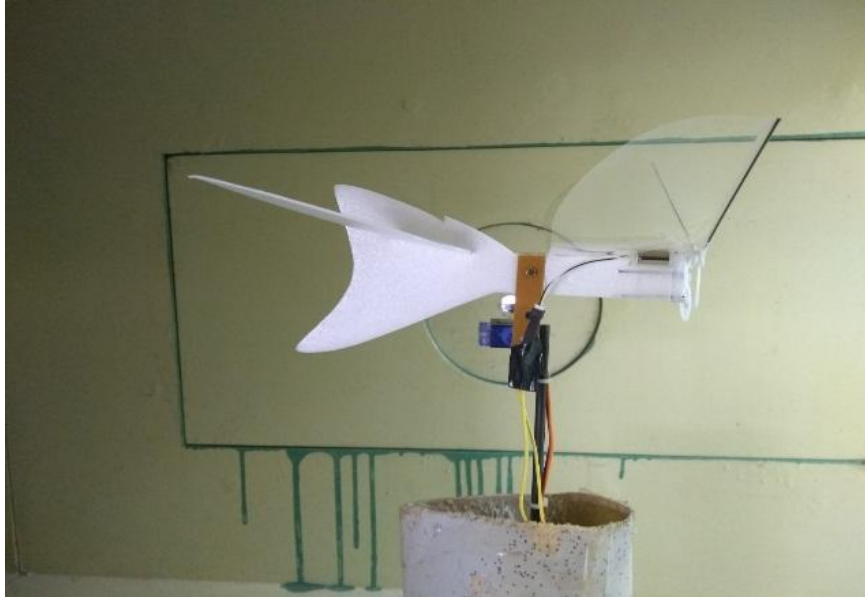
Novel Design and Manufacturing

All up weight 30 kg

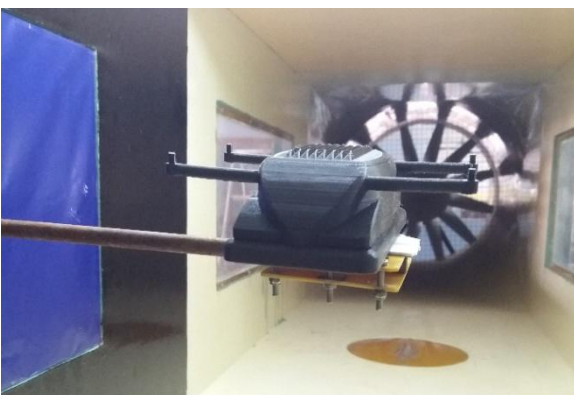


Pioneering Unmanned Systems !!

Development of Energy Efficient Evans Flapping Mechanism Using Selective Laser Melting and Polyjet



Design and Development of Amphibian Unmanned System



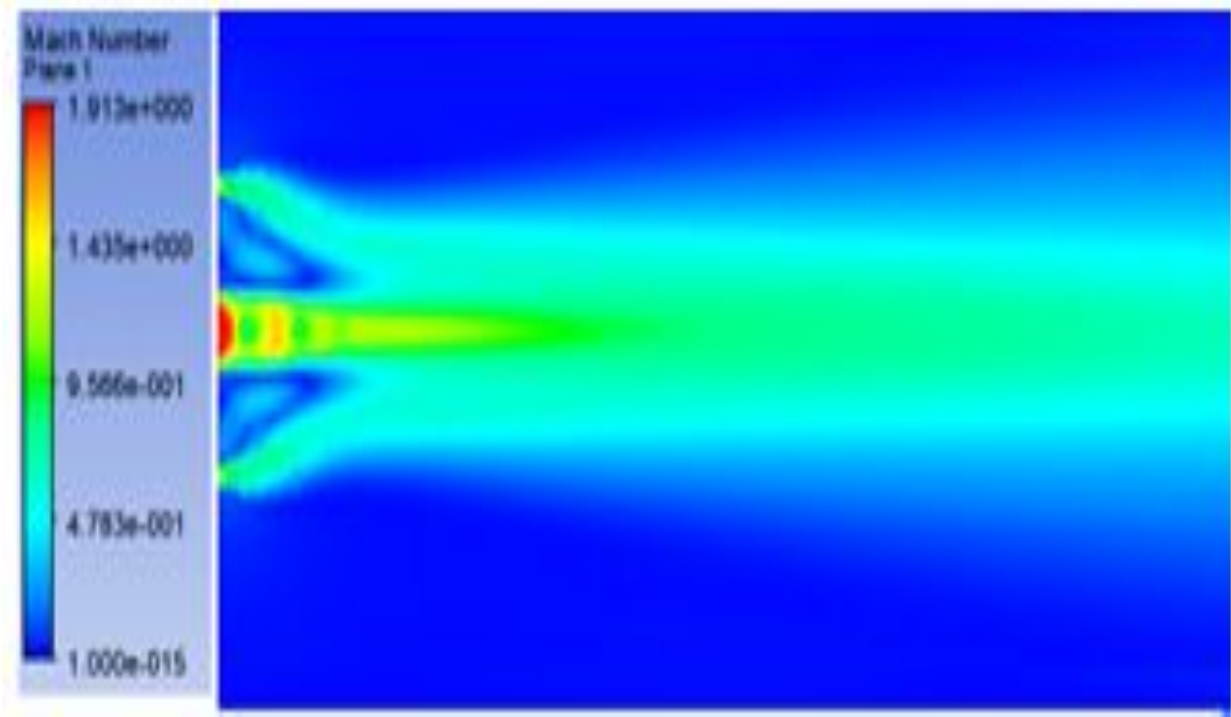
Optimization of AUV hull, for Naval Science and Technology Limited, DRDO Visakhapatnam



Improving the thermal efficiency of domestic gas stove on various models, Preethi Pvt Ltd



Optimizing Supersonic Co-Axial Nozzle design for Mixing Enhancement, TARE, IITM



विज्ञान एवं प्रौद्योगिकी विभाग
DEPARTMENT OF
SCIENCE & TECHNOLOGY



UAV Projects - Glimpses



Vel Tech - ACT Telecom Drone



Aquatic Drone - Indo Korea R&D



Vel Tech - Magnum Mapping UAV



Vel Tech - Magnum Hybrid UAV

Recognitions & Contributions

- ❖ Dr. G.Surendar was invited as a resource person to deliver a guest lecture on "Design of Fixed wing and Hybrid UAVs and their applications" in 2021.
- ❖ Dr. G.Surendar was also a Guest Speaker in Online Continuing Professional Development Programmes on "Glimpses on Development of UAVs for various applications" on 26 to 28 July 2021.
- ❖ According to the AD scientific Index for scientists, Miss. S.Nithya was in 13th rank in university Level.
- ❖ Miss.S.Nithya received the cash prize and the certificate for paper publications on 24 February 2021.
- ❖ Dr. Jaganraj is invited as Jury panel for Aerothon 2022, UAV project expo organized by SAE India.

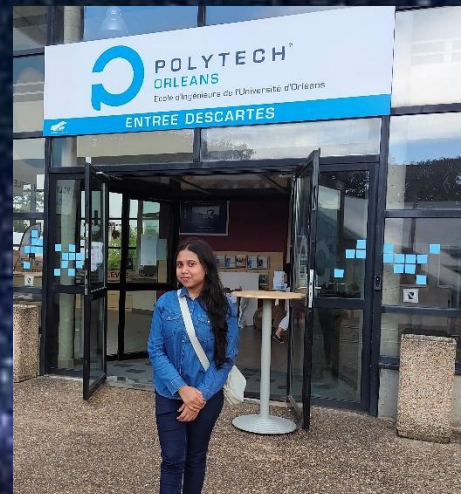




Students & Campus Life

14 International Projects

9 opportunity for MS in Abroad



11 Industry Project

2 With Stipend

60 + National and International
Events Participation





Inhouse Club for Training Students
in Unmanned Systems and Drones



International Students Forum
Organized by MIT, USA



Opportunity to Work in
international and national funded
projects



Aviator Club
Drone Training Session



Winning Moment at Drone Olympics, Aero India 2019, Organized by Ministry of Defence, Govt of India



Live Experience in Funded & Industry Projects !!



Students estimating flapping wing UAV performance



Students working on SEED funded project on design phase



Vel Tech

Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
Deemed to be University End. u/s of UGC Act, 1956



4th International Conference on

**Innovative Design, Analysis &
Development Practices in
Aerospace and Automotive
Engineering**

15th February 2020

Iconic Events

Special Elective courses by International Experts
"Micro Air Vehicle" - Prof. Yang, Tamkang University, Taiwan



Special Elective courses by Industry Experts
TN Sport University, Chennai



SEDS Club
Volunteering students at Hot Air
Balloon Festival, Chennai



Motivational Webinar by Industry
Experts



Workshop : Design
Thinking

Online Webinars & Workshops on Recent Technical Areas



School of Mechanical Engineering and Construction,
Department of Aeronautical Engineering
organizes Two Days Webinar Series on

Advanced Material Characterization Techniques

18th & 19th June 2021

IN THE PRESENCE OF

Col. Prof. Vel. Dr. R. Rangarajan
Chancellor & Founder President

Dr. Sagunthala Rangarajan
Foundress President

Dr. S. Salivahanan
Vice Chancellor

Dr. A.T. Ravichandran
Dean Academics

e-certificates will be provided to participants subjected to feedback submission with 80% of attendance.

Buckling Characterization of Fiber Reinforced Composites

18.06.2021, Friday
10.00 a.m. to 12.00 p.m.

Fatigue Characterization of Polymer Matrix Composites

18.06.2021, Friday
02.00 p.m. to 04.00 p.m.

Non-destructive Characterization of Fibrous Materials using Acoustic Emission Techniques

19.06.2021, Saturday
10.00 a.m. to 12.00 p.m.

RESOURCE PERSONS



Dr. K. Yadivuchezhian
Professor, Hydraulics and Applied Mechanics Department, NIT Surathkal, Karnataka



Dr. S. Venkatachalam
Professor, Department of Aeronautical Engineering, Karunya University, Coimbatore



Dr. V. Arumugam
Professor, Department of Aeronautical Engineering, MIT, Anna University, Chennai

Registration Link: <https://bit.ly/35tVpOG>

Webinar Organizer: J.V. Sai Prasanna Kumar
+91 97909 34366 | E-mail ID: drjvsaiprasannakumar@veltech.edu.in



Vel Tech
Rangarajan Dr. Sagunthala
R&D Institute of Science and Technology
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)

School of Mechanical Engineering and Construction,
Department of Aeronautical Engineering

organizes Three Days Webinar Series on

Vehicle Aerodynamics and Heat Transfer

7th June - 9th June 2021

IN THE PRESENCE OF

Col. Prof. Vel. Dr. R. Rangarajan
Chancellor & Founder President

Dr. Sagunthala Rangarajan
Foundress President

Dr. S. Salivahanan
Vice Chancellor

Dr. A.T. Ravichandran
Dean Academics

e-certificates will be provided to participants subjected to feedback submission with 80% of attendance.

Basics of Vehicle Aerodynamics and CFD

07.06.2021, Monday
11.00 a.m. to 12.30 p.m.

Aerodynamics of Cars

08.06.2021, Tuesday
11.00 a.m. to 12.30 p.m.

Heat Transfer Analysis in Cars

09.06.2021, Wednesday
11.00 a.m. to 12.30 p.m.

RESOURCE PERSONS



Dr. Joseph J Kakkaserry
Assoc. Professor, Mechanical Engineering, Vel Tech



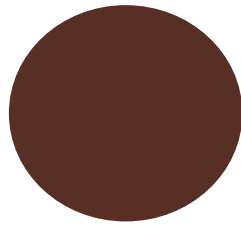
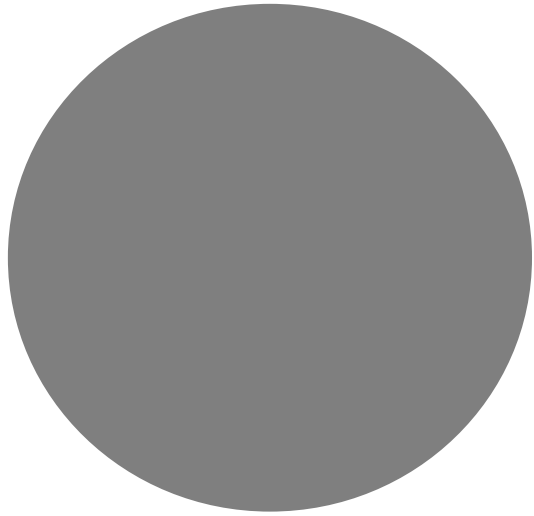
Ms. V. Bhuvaneshwari
Associate Engineer (SG5) Ford Motor Private Ltd



Scan the QR Code to Register (or)

Registration Link: <https://tinyurl.com/uaafncr7>

Webinar Organizer: Dr. R. Naren Shankar
Mobile: 9940175934 | E-mail ID: narensankar@veltech.edu.in



International and Industry Relation



Internship students testing UAV performance at NFU, Taiwan



2020 batch Internship students at Taiwan



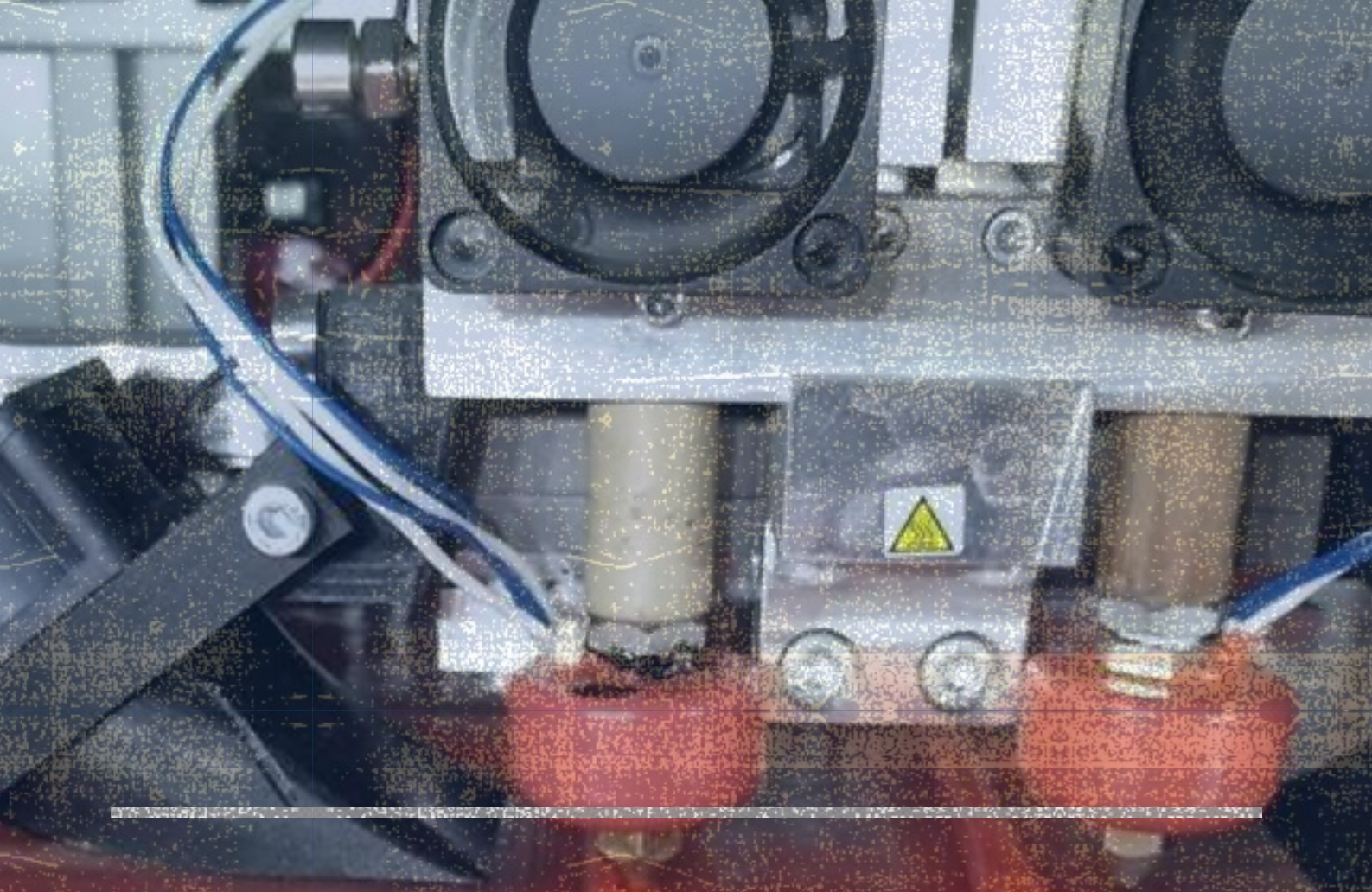
IDAD 2020, Get together with International Delegates



With Partner Industry at Defense Expo

Exhibiting our UAV Products at IAF. A proud moment !





Infrastructure



Center for Design and prototyping

Gives reality to your imaginations



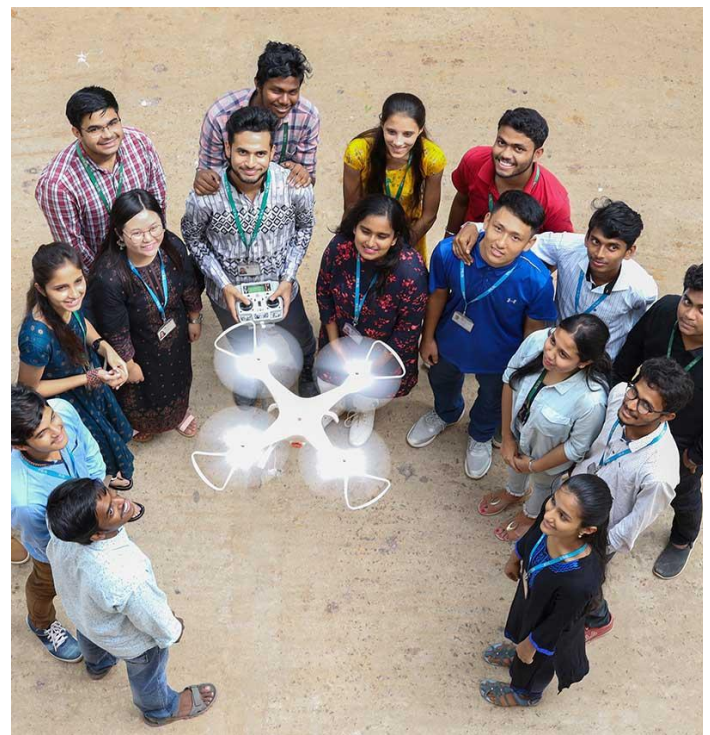
Low Speed Wind Tunnel

Check Essentials of the Flying
Prototypes



Flight Mechanics and Control Lab

Practice controlling of flying
objects



Aircraft Simulator

Feel Fly !



Aircraft Systems Lab

Hands on Training on Systems!



Aircraft Structures Lab

Analyze the loads acting on the parts of the Airplane



Propulsion Lab

Practice Rocket Science



Inspire The Success stories



*"I had a medium to See the Outer world.
During my college days.
And that medium is VELTECH"*

*"You need a platform to work smart and prove yourself,
VELTECH was a platform for me"*

Thanks and Regards

Prashanth Nagarajan

Test Engineer | Pune , India

Extn: 255356

" From my childhood I had a dream of becoming an aerospace engineer. My dream was ignited in 2013 , The excellent year where i had the opportunity of joining in Aeronautical engineering at veltech university. Within that Four years span , The department of aeronautical engineering has taught me with immense amount of knowledge that helped to grow in my career. The experience that i gained in that 4years of Bachelor's made me qualifying candidate to apply for Master degree in Canada.

I have ended up in getting M.Eng in Aerospace engineering From one of the top university in the world " Ryerson University ", Toronto,ontario,Canada.

It ain't be possible without the help of the Professors and Department of Aeronautical Engineering. And i'm so grateful and thankful to Veltech university and its staffs.

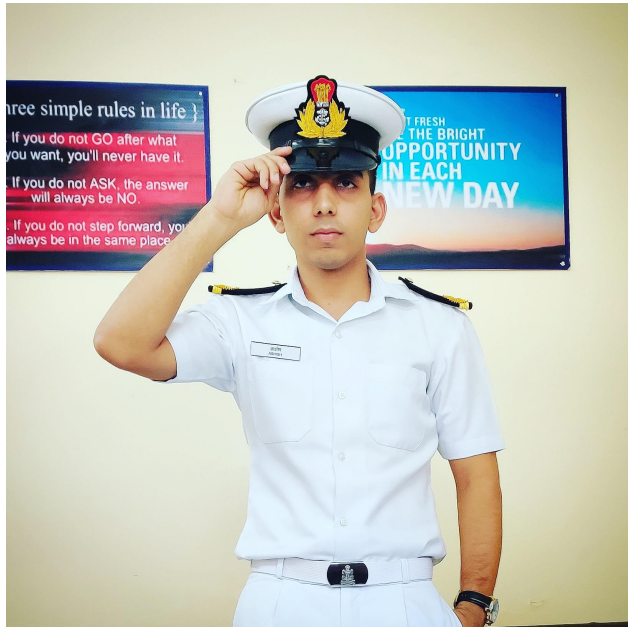
To be successful ,You have to choose the best option , I choose Veltech as my option.

I'm Proud to be a Veltechian .

Thanks and Regards,
Guruprasaath Suresh,
M.ENG Aerospace,
Ryerson University.



Inspire The Success stories



What are learners supposed to do after learning the course? Figure that out and build the appropriate interactive elements. This is what I did after being a B.tech graduate in Aeronautical Engineering from Vel Tech University. My college life was more than a learning experience for me. Apart from the core academic lessons imparted by renowned faculty from various nooks and corners of the country and beyond, getting into Vel Tech University also required diligence on my part. I received ₹8 lakhs as Mahatma Gandhi National Merit Scholarship. I immensely happy to befriend people coming from various cultural backgrounds. What I had imbibed was to embrace cultural diversities and to bridge the gaps, as and when necessary. The hostel life was also an important life lesson as it was very fruitful at aiming the holistic development of a student. I owe my gratitude to my supportive parents and Professors for whom I could not only score 9.2 CGPA but also mould myself as a responsible Indian citizen.

Currently i am serving as Lieutenant at Indian Navy. Traits which i have imbibed in my university lead me this way beyond my expectations.

Asish Rohila

The great experience with faculty members, laboratories and knowledge pursued from the courses of my choice, practical knowledge from projects, molded & shaped my personality and provided me the platform for my carrier.

Thaiba Nazreen



Inspire The Success stories

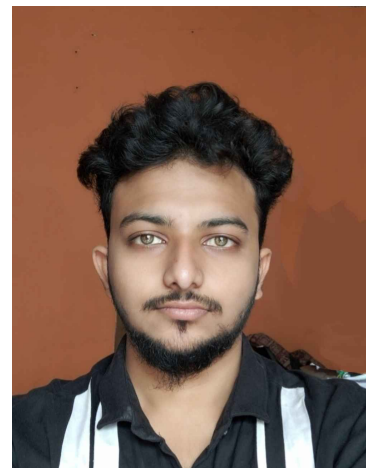


Divyanshu Mishra, B. Tech- Aero (IV Year)

Gold Medal Winner in State Level Taekwondo Championship & selected for national level.



VTU16224 - BIBEK AGRAHARI,
Company Name - TechEagle Innovations
Private Limited, stipend- 15000rs,
Duration - 1 year, Aero structure
Internship



VTU15480 - CHIRANJIT DAS,
Company name - Innovative
unmanned Systems, stipend -
10000, duration - 6 months,
position - Intern design Engineer

ICT Tools Usage

Classes are given on an as-needed basis to provide students with more experience in MATLAB and PYTHON PROGRAMMING. These classes demonstrate how current technologies may be utilized in a variety of fields to address difficult issues.

In the Winter Semester 21-22, we introduced the Program elective course of Python programming for Aeronautical Engineers 6 credits with the conducted hours of 150. The main objectives are as follows

- To learn to solve problems using python conditionals and loops
- To define python functions and use functions calls to solve numerous problems
- To learn to operate and control drones by using python programs

This course benefitted 31 students successfully by practicing many python programs.



Elective Courses offered

The overall elective course categories with their counts are

- ❖ Program Elective subjects – 53
- ❖ Allied Electives – 09
- ❖ Institute Electives – 18

Industry / Higher Institute Learning

Industry and higher institute learning give students the opportunity to get in-depth information from knowledgeable and skilled professionals working in a variety of sectors as well as from resource individuals from other countries. The offered course in the academic year 21-22 was Flapping wing Aerodynamics – A practical case Study. It was specially designed and offered by Prof. Dr. Yung- Jieh Yang From the department of Mechanical and Electro-Mechanical Engineering, Tamkang University, Taiwan.

45 students successfully completed and earned the credits.



Global Career Options - Aero Students



Sl.No	Name of the Student	VTU No	Academic Year	University	Country
1	Simron Biswas	VTU11462	2021-2022	École Centrale de Lyon	Lyon, France
2	Bhandarla Dharani	VTU11303	2021-2022	National Chung kung university	Taiwan
3	Venkata Sumanth.M	VTU9042	2021-2022	University of texas	Arlington
4	Jewel Rupini	VTU 10414	2020-2021	University of Leicester	UK
5	T.Rohith Reddy	VTU9063	2020-2021	National Cheng Kung University	Taiwan
6	Shaikmuzza Miliali	VTU8805	2020-2021	University of Bologna	Italy
7	Chalicheemala Likhith	VTU8733	2020-2021	New York Institute of Technology	USA
8	Akash.K	VTU8944	2020-2021	Sapenzia University	Italy
9	Phanikumar.J.D	VTU8939	2020-2021	Jain University	INDIA
10	Balaji V	VTU6740	2019-2020	National Cheng Kung University	Taiwan
11	Mahesh Naga Sai K	VTU6763	2019-2020	National Cheng Kung University	Taiwan
12	Praneeth Pedada	VTU8172	2019-2020	National Formasa University	Taiwan
13	Rajveer G V	VTU6772	2019-2020	National Formasa University	Taiwan
14	D. Daljit Majil	VTU5726	2018-2019	National Cheng Kung University	Taiwan

15	Guru Prasaath. S	VTU4094	2018-2019	Ryerson University	Canada
16	Srivardhan Satyaraj Mamidi	VTU5357	2018-2019	National Cheng Kung University	Taiwan
17	Naga Veera Manikanta Sane	VTU5651	2018-2019	National Formosa University	Taiwan
18	Atul Kumar	VTU5116	2018-2019	National Formosa University	Taiwan
19	Sareddy Kullai Reddy	VTU3173	2017-2018	National Cheng Kung University	Taiwan
20	M. Prasanth	VTU1890	2017-2018	National Cheng Kung University	Taiwan
21	K. Nagamanikanta	VTU4099	2017-2018	Kaunas University of Technology	Lithuania
22	Mastan Raja Papanaboina	VTU4385	2017-2018	Kaunas University of Technology	Lithuania
23	S. Annapurneshwari	VTU3713	2017-2018	ISAE - ENSMA	France
24	Machi Reddy Yugandhar	VTU1887	2016-2017	Tamkang University	Taiwan
25	Piyarul Hoque	VTU1930	2016-2017	National Cheng Kung University	Taiwan
26	Sunil Kumar Reddy	VTU1871	2016-2017	National Cheng Kung University	Taiwan
27	Satish Kumar Reddy Kona	VTU1897	2016-2017	Riga Technical University	Latvia
28	Ajani Kajal Rajesh	VTU3356	2016-2017	National Cheng Kung University	Taiwan
29	Mohit Aggarwal	VTU3400	2016-2017	National Cheng Kung University	Taiwan

30	Ujjwal Ravinder Grover	VTU1925	2016-2017	Concordia University	Canada
31	J.Sanjay Kiran	VTU1920	2016-2017	Concordia University	Canada
32	Uddagiri Hemantha Ramakishore	VTU3641	2016-2017	National Cheng Kung University	Taiwan
33	Deepanshu Verma	VTU3588	2016-2017	National Cheng Kung University	Taiwan
34	Poola Muniprasad	VTU3397	2016-2017	National Cheng Kung University	Taiwan

Industry Career Options - Aero Students



2021-22

S.NO.	NAME OF THE STUDENT	NAME OF THE COMPANY	NO OF OFFER(S) ON HAND
1	G.Martina	DXC	Placement
2	Aditya Chhetri	Cognizant	Placement
3	Gowtham Kumar Peddi	Cognizant	Placement
4	Jajganesh Deenadayalan	Cognizant	Placement
5	Sai Kiran Sampatirao	Cognizant	Placement
6	Sai Lokesh Kandivalasa	Cognizant	Placement
7	Sainath Uppara	Cognizant	Placement
8	Sameer Guru	Cognizant	Placement
9	Arun Kumar Geddam	Cognizant	Placement
10	Jaffer Shaik	Cognizant	Placement
11	Prathiba Kedia	DXC	Placement
12	Sandakyrkhu Syierlait	DXC	Placement
13	Pujitha Modugumudi	Mu Sigma	Placement
14	Cherukuri Mahesh Babu	Mu Sigma	Placement
15	Mohammad Vazidh Alikhan	Mu Sigma	Placement
16	U Vijay Kumar	Mu Sigma	Placement
17	Saddala Ashvini	TAFE	Project
18	Solipuram Kamalakkhar Reddy	Aerospace R&D Pvt Limited	Project
19	Sanda Mithun Kumar	Aerospace R&D Pvt Limited	Project
20	Borde Ganesh	KITE , IIT Madras	Project
21	Shaik Mohammed Jeelan Basha	Aerospace R&D Pvt Limited	Project
22	Sivam Kumar	CMTI	Project
23	Swarup Kumar Ghosh	GMR Aerospace	Project
24	Sameer Guru	Aerospace R&D Pvt Limited	Project

2020-21

S.NO.	NAME OF THE STUDENT	NAME OF THE COMPANY	NO OF OFFER(S) ON HAND
1	SMRUTHI SRIKANTH	TCS	Placement
2	KAJOL KUMARI	TCS	Placement
3	SUSHANTH REDDY	TCS	Placement
4	ADITHYA SUBHASH REDDY	ACCENTURE	Placement
5	HARISH	SUTHERLAND	Placement
6	MANIKESH	SUTHERLAND	Placement
7	MUHAMMED ADNAN	SUTHERLAND	Placement
8	PURSHOTTAM KUMAR YADAV	SUTHERLAND	Placement
9	ROHITH NAGENDRA KUMAR	SUTHERLAND	Placement
10	SAIRAM	SUTHERLAND	Placement
11	VAMSI SAI REDDY	SUTHERLAND	Placement

2020-21

S.NO.	NAME OF THE STUDENT	NAME OF THE COMPANY	Nature of Opportunity
1	EKANSHU KHURANA	ACCENTURE	Placement
2	YERRAGUDI SRICHANDAN	ACCENTURE	Placement

Pioneering

AERO

Inspiration through Innovation

**Department of Aeronautical Engineering
School of Mechanical and Construction**



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